

## **RAW SEQUENCE LISTING**

**The Biotechnology Systems Branch of the Scientific and Technical  
Information Center (STIC) no errors detected.**

Application Serial Number: 08/737,904 I  
Source: IFW/b  
Date Processed by STIC: 7/14/05

# ***ENTERED***



IFW16

## RAW SEQUENCE LISTING

DATE: 07/14/2005

PATENT APPLICATION: US/08/737,904I

TIME: 16:15:06

Input Set : A:\seqlistcorrected(06-05).txt

Output Set: N:\CRF4\07142005\H737904I.raw

3 <110> APPLICANT: Griffith, Irwin J.  
 4 Kuo, Mei-Chang  
 5 Luqman, Mohammad  
 7 <120> TITLE OF INVENTION: T CELL EPITOPES OF RYEGRASS POLLEN ALLERGEN  
 9 <130> FILE REFERENCE: IMI-040CP3  
 11 <140> CURRENT APPLICATION NUMBER: 08/737,904I  
 12 <141> CURRENT FILING DATE: 1996-11-20  
 14 <150> PRIOR APPLICATION NUMBER: PCT/US94/09024  
 15 <151> PRIOR FILING DATE: 1994-08-05  
 17 <150> PRIOR APPLICATION NUMBER: 08/106,016  
 18 <151> PRIOR FILING DATE: 1993-08-13  
 20 <160> NUMBER OF SEQ ID NOS: 62  
 22 <170> SOFTWARE: PatentIn Ver. 2.0  
 24 <210> SEQ ID NO: 1  
 25 <211> LENGTH: 1229  
 26 <212> TYPE: DNA  
 27 <213> ORGANISM: Lolium perenne  
 29 <220> FEATURE:  
 30 <221> NAME/KEY: CDS  
 31 <222> LOCATION: (40)...(942)  
 33 <221> NAME/KEY: sig\_peptide  
 34 <222> LOCATION: (40)...(115)  
 W--> 36 <221> mat\_peptide  
 37 <222> LOCATION: (115)...(942)  
 W--> 39 <400> 1  
 40 cgctatccct ccctcgtaga aacaaacgca agagcagca atg gcc gtc cag aag 54  
 41 Met Ala Val Gln Lys  
 42 -25  
 44 tac acg gtg gct cta ttc ctc gcc gtg gcc ctc gtg gcg ggc ccg gcc 102  
 45 Tyr Thr Val Ala Leu Phe Leu Ala Val Ala Leu Val Ala Gly Pro Ala  
 46 -20 -15 -10 -5  
 48 gcc tcc tac gcc gct gac gcc ggc tac acc ccc gca gcc gcg gcc acc 150  
 49 Ala Ser Tyr Ala Ala Asp Ala Gly Tyr Thr Pro Ala Ala Ala Thr  
 50 1 5 10  
 52 ccg gct act cct gct gcc acc ccg gct gcg gct gga ggg aag gcg acg 198  
 53 Pro Ala Thr Pro Ala Ala Thr Pro Ala Ala Ala Gly Gly Lys Ala Thr  
 54 15 20 25  
 56 acc gac gag cag aag ctg ctg gag gac gtc aac gct ggc ttc aag gca 246  
 57 Thr Asp Glu Gln Lys Leu Leu Glu Asp Val Asn Ala Gly Phe Lys Ala  
 58 30 35 40  
 60 gcc gtg gcc gcc gct gcc aac gcc cct ccg gcg gac aag ttc aag atc 294  
 61 Ala Val Ala Ala Ala Ala Asn Ala Pro Pro Ala Asp Lys Phe Lys Ile  
 62 45 50 55 60

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64 ttc gag gcc gcc ttc tcc gag tcc tcc aag ggc ctc ctc gcc acc tcc 342
65 Phe Glu Ala Ala Phe Ser Glu Ser Ser Lys Gly Leu Leu Ala Thr Ser
66          65          70          75
68 gcc gcc aag gca ccc ggc ctc atc ccc aag ctc gac acc gcc tac gac 390
69 Ala Ala Lys Ala Pro Gly Leu Ile Pro Lys Leu Asp Thr Ala Tyr Asp
70          80          85          90
72 gtc gcc tac aag gcc gcc gag ggc gcc acc ccc gag gcc aag tac gac 438
73 Val Ala Tyr Lys Ala Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp
74          95          100          105
76 gcc ttc gtc act gcc ctc acc gaa gcg ctc cgc gtc atc gcc ggc gcc 486
77 Ala Phe Val Thr Ala Leu Thr Glu Ala Leu Arg Val Ile Ala Gly Ala
78          110          115          120
80 ctc gag gtc cac gcc gtc aag ccc gcc acc gag gag gtc cct gct gct 534
81 Leu Glu Val His Ala Val Lys Pro Ala Thr Glu Glu Val Pro Ala Ala
82 125          130          135          140
84 aag atc ccc acc ggt gag ctg cag atc gtt gac aag atc gat gct gcc 582
85 Lys Ile Pro Thr Gly Glu Leu Gln Ile Val Asp Lys Ile Asp Ala Ala
86          145          150          155
88 ttc aag atc gca gcc acc gcc gcc aac gcc gcc ccc acc aac gat aag 630
89 Phe Lys Ile Ala Ala Thr Ala Ala Asn Ala Ala Pro Thr Asn Asp Lys
90          160          165          170
92 ttc acc gtc ttc gag agt gcc ttc aac aag gcc ctc aat gag tgc acg 678
93 Phe Thr Val Phe Glu Ser Ala Phe Asn Lys Ala Leu Asn Glu Cys Thr
94          175          180          185
96 ggc ggc gcc tat gag acc tac aag ttc atc ccc tcc ctc gag gcc gcg 726
97 Gly Gly Ala Tyr Glu Thr Tyr Lys Phe Ile Pro Ser Leu Glu Ala Ala
98          190          195          200
100 gtc aag cag gcc tac gcc gcc acc gtc gcc gcc gcg ccc gag gtc aag 774
101 Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala Ala Pro Glu Val Lys
102 205          210          215          220
104 tac gcc gtc ttt gag gcc gcg ctg acc aag gcc atc acc gcc atg acc 822
105 Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala Ile Thr Ala Met Thr
106          225          230          235
108 cag gca cag aag gcc ggc aaa ccc gct gcc gcc gct gcc aca ggc gcc 870
109 Gln Ala Gln Lys Ala Gly Lys Pro Ala Ala Ala Ala Ala Thr Gly Ala
110          240          245          250
112 gca acc gtt gcc acc ggc gcc gca acc gcc gcc gcc ggt gct gcc acc 918
113 Ala Thr Val Ala Thr Gly Ala Ala Thr Ala Ala Ala Gly Ala Ala Thr
114          255          260          265
116 gcc gct gct ggt ggc tac aaa gcc tgatcagctt gctaataatata tactgaacgt 972
117 Ala Ala Ala Gly Gly Tyr Lys Ala
118          270          275
120 atgtatgtgc atgatccggg cggcgagtgg ttttgttgat aattaatctt cgttttcggt 1032
121 tcatgcagcc gcgatcgaga gggcttgcat gcttgtaata attcaatatt ttccatttct 1092
122 ttttgaatct gtaaatcccc atgacaagta gtgggatcaa gtcggcatgt atcaccgttg 1152
123 atgcgagttt aacgatgggg agtttatcaa agaatttatt attaaaaaaaa aaaaaaaaaa 1212
124 aaaaaaaaaa aaaaaaa 1229
126 <210> SEQ ID NO: 2
127 <211> LENGTH: 301

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```

128 <212> TYPE: PRT
129 <213> ORGANISM: Lolium perenne
131 <220> FEATURE:
132 <221> NAME/KEY: SIGNAL
133 <222> LOCATION: (1)...(25)
135 <400> SEQUENCE: 2
136 Met Ala Val Gln Lys Tyr Thr Val Ala Leu Phe Leu Ala Val Ala Leu
137 -25 -20 -15 -10
138 Val Ala Gly Pro Ala Ala Ser Tyr Ala Ala Asp Ala Gly Tyr Thr Pro
139 -5 1 5
140 Ala Ala Ala Ala Thr Pro Ala Thr Pro Ala Ala Thr Pro Ala Ala Ala
141 10 15 20
142 Gly Gly Lys Ala Thr Thr Asp Glu Gln Lys Leu Leu Glu Asp Val Asn
143 25 30 35
144 Ala Gly Phe Lys Ala Ala Val Ala Ala Ala Asn Ala Pro Pro Ala
145 40 45 50 55
146 Asp Lys Phe Lys Ile Phe Glu Ala Ala Phe Ser Glu Ser Ser Lys Gly
147 60 65 70
148 Leu Leu Ala Thr Ser Ala Ala Lys Ala Pro Gly Leu Ile Pro Lys Leu
149 75 80 85
150 Asp Thr Ala Tyr Asp Val Ala Tyr Lys Ala Ala Glu Gly Ala Thr Pro
151 90 95 100
152 Glu Ala Lys Tyr Asp Ala Phe Val Thr Ala Leu Thr Glu Ala Leu Arg
153 105 110 115
154 Val Ile Ala Gly Ala Leu Glu Val His Ala Val Lys Pro Ala Thr Glu
155 120 125 130 135
156 Glu Val Pro Ala Ala Lys Ile Pro Thr Gly Glu Leu Gln Ile Val Asp
157 140 145 150
158 Lys Ile Asp Ala Ala Phe Lys Ile Ala Ala Thr Ala Ala Asn Ala Ala
159 155 160 165
160 Pro Thr Asn Asp Lys Phe Thr Val Phe Glu Ser Ala Phe Asn Lys Ala
161 170 175 180
162 Leu Asn Glu Cys Thr Gly Gly Ala Tyr Glu Thr Tyr Lys Phe Ile Pro
163 185 190 195
164 Ser Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala
165 200 205 210 215
166 Ala Pro Glu Val Lys Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala
167 220 225 230
168 Ile Thr Ala Met Thr Gln Ala Gln Lys Ala Gly Lys Pro Ala Ala Ala
169 235 240 245
170 Ala Ala Thr Gly Ala Ala Thr Val Ala Thr Gly Ala Ala Thr Ala Ala
171 250 255 260
172 Ala Gly Ala Ala Thr Ala Ala Ala Gly Gly Tyr Lys Ala
173 265 270 275
176 <210> SEQ ID NO: 3
177 <211> LENGTH: 20
178 <212> TYPE: PRT
179 <213> ORGANISM: Lolium perenne
181 <220> FEATURE:

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```

182 <221> NAME/KEY: VARIANT
183 <222> LOCATION: (7)
184 <223> OTHER INFORMATION: Xaa = hydroxyproline residue
186 <220> FEATURE:
187 <221> NAME/KEY: VARIANT
188 <222> LOCATION: (13)
189 <223> OTHER INFORMATION: Xaa = hydroxyproline residue
191 <220> FEATURE:
192 <221> NAME/KEY: VARIANT
193 <222> LOCATION: (16)
194 <223> OTHER INFORMATION: Xaa = hydroxyproline residue
196 <220> FEATURE:
197 <221> NAME/KEY: VARIANT
198 <222> LOCATION: (20)
199 <223> OTHER INFORMATION: Xaa = hydroxyproline residue
201 <400> SEQUENCE: 3
W--> 202 Ala Asp Ala Gly Tyr Thr Xaa Ala Ala Ala Thr Xaa Ala Thr Xaa
      203   1             5             10             15
      205 Ala Ala Thr Xaa
      206             20
209 <210> SEQ ID NO: 4
210 <211> LENGTH: 20
211 <212> TYPE: PRT
212 <213> ORGANISM: Lolium perenne
214 <220> FEATURE:
215 <221> NAME/KEY: VARIANT
216 <222> LOCATION: (3)
217 <223> OTHER INFORMATION: Xaa = hydroxyproline residue
219 <220> FEATURE:
220 <221> NAME/KEY: VARIANT
221 <222> LOCATION: (6)
222 <223> OTHER INFORMATION: Xaa = hydroxyproline residue
224 <220> FEATURE:
225 <221> NAME/KEY: VARIANT
226 <222> LOCATION: (10)
227 <223> OTHER INFORMATION: Xaa = hydroxyproline residue
229 <400> SEQUENCE: 4
W--> 230 Ala Thr Xaa Ala Thr Xaa Ala Ala Thr Xaa Ala Ala Ala Gly Gly Lys
      231   1             5             10             15
      233 Ala Thr Thr Asp
      234             20
237 <210> SEQ ID NO: 5
238 <211> LENGTH: 20
239 <212> TYPE: PRT
240 <213> ORGANISM: Lolium perenne
242 <220> FEATURE:
244 <400> SEQUENCE: 5
245 Ala Ala Ala Gly Gly Lys Ala Thr Thr Asp Glu Gln Lys Leu Leu Glu
246   1             5             10             15

```

## RAW SEQUENCE LISTING

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TIME: 16:15:06

Input Set : A:\seqlistcorrected(06-05).txt

Output Set: N:\CRF4\07142005\H737904I.raw

```

248 Asp Val Asn Ala
249      20
252 <210> SEQ ID NO: 6
253 <211> LENGTH: 20
254 <212> TYPE: PRT
255 <213> ORGANISM: Lolium perenne
257 <400> SEQUENCE: 6
258 Glu Gln Lys Leu Leu Glu Asp Val Asn Ala Gly Phe Lys Ala Ala Val
259   1      5      10      15
261 Ala Ala Ala Ala
262      20
265 <210> SEQ ID NO: 7
266 <211> LENGTH: 20
267 <212> TYPE: PRT
268 <213> ORGANISM: Lolium perenne
270 <400> SEQUENCE: 7
271 Gly Phe Lys Ala Ala Val Ala Ala Ala Ala Asn Ala Pro Pro Ala Asp
272   1      5      10      15
274 Lys Phe Lys Ile
275      20
278 <210> SEQ ID NO: 8
279 <211> LENGTH: 20
280 <212> TYPE: PRT
281 <213> ORGANISM: Lolium perenne
283 <400> SEQUENCE: 8
284 Asn Ala Pro Pro Ala Asp Lys Phe Lys Ile Phe Glu Ala Ala Phe Ser
285   1      5      10      15
287 Glu Ser Ser Lys
288      20
291 <210> SEQ ID NO: 9
292 <211> LENGTH: 20
293 <212> TYPE: PRT
294 <213> ORGANISM: Lolium perenne
296 <400> SEQUENCE: 9
297 Phe Glu Ala Ala Phe Ser Glu Ser Ser Lys Gly Leu Leu Ala Thr Ser
298   1      5      10      15
300 Ala Ala Lys Ala
301      20
304 <210> SEQ ID NO: 10
305 <211> LENGTH: 20
306 <212> TYPE: PRT
307 <213> ORGANISM: Lolium perenne
309 <400> SEQUENCE: 10
310 Gly Leu Leu Ala Thr Ser Ala Ala Lys Ala Pro Gly Leu Ile Pro Lys
311   1      5      10      15
313 Leu Asp Thr Ala
314      20
317 <210> SEQ ID NO: 11
318 <211> LENGTH: 20

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RAW SEQUENCE LISTING ERROR SUMMARY  
PATENT APPLICATION: US/08/737,904I

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TIME: 16:15:07

Input Set : A:\seqlistcorrected(06-05).txt  
Output Set: N:\CRF4\07142005\H737904I.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:3; Xaa Pos. 7,13,16,20

Seq#:4; Xaa Pos. 3,6,10

Seq#:31; Xaa Pos. 5,8

Seq#:54; Xaa Pos. 7,13,16,20

**VERIFICATION SUMMARY**

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TIME: 16:15:07

Input Set : A:\seqlistcorrected(06-05).txt

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L:36 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:1  
L:39 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:1  
L:202 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:0  
M:341 Repeated in SeqNo=3  
L:230 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:0  
L:590 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:31 after pos.:0  
L:909 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:54 after pos.:0  
M:341 Repeated in SeqNo=54